

REMARKS/ARGUMENTS

Support for Amendments

The amendments to claims 1, 8 and 15 consist of incorporating the limitations of claims 4, 11, and 19, respectively (which claims are now canceled), and adding in the limitations that the lateral flow through the etched portions on the downstream side of each plate occur "in all directions between flow-through holes in adjacent plates." Support for "in all directions" is found in the specification as filed at page 9, lines 23-26 (which contains the equivalent language "traversing 360 degrees sideways"), and "between flow-through holes in adjacent plates" finds support at the same location (with the equivalent language "to exit through the next platelet holes where the process repeats"). The other amendments are merely clarifications and corrections of obvious errors. No new matter is presented, and entry of the amendment is respectfully requested.

Rejections Over the Prior Art

With these amendments, the rejections of the claims over the prior art are respectfully traversed.

The distinctions over Kuntz US 3,535,879 lie in the limitations in Applicants' claims that require (1) a plurality of flow-through holes in each plate, (2) that the flow-through holes of adjacent plates be offset from each other ("from plate to plate"), and (3) that the lateral flow between adjacent plates direct the flow between the flow-through holes of one plate to the flow-through holes of the next plate. The Kuntz catalyst pack clearly lacks these features and is instead designed to direct flow in an entirely different configuration. The only flow-through holes in any of the plates in the Kuntz stack are the aligned holes in the center of the stack. Of these, there is only one per stack and all are aligned rather than offset. Furthermore, the passages between the Kuntz plates extend from the central hole in each plate to the outer edge of each plate where the gas passes the out of the stack entirely. This is a strictly outward flow that does not take gas from a flow-through hole in one plate and direct it to the flow-through hole in another (to do this, the gas would have to turn around and go backwards which the pressure drop

in this arrangement will not permit). Accordingly, the rejection of claims 1, 5-8, 12-15 and 20 as anticipated by the Kuntz disclosure is respectfully traversed, since none of the three limitations enumerated above are disclosed by Kuntz.

Recognizing that claims 4, 11 and 19, which are now incorporated into claims 1, 8, and 15, stand rejected as obvious over the disclosure of Kuntz, Applicants traverse this rejection as well. The "offset diverters" of Kuntz are not offset from plate to plate but rather within each plate. This will mix the flow in the lateral direction but will not affect flow in the axial direction, which is the purpose and effect of Applicants' offset. Claims 1, 5-8, 12-15 and 20 are not obvious over the disclosure of Kuntz since the flow configuration created by these limitations is fundamentally different from that of the Kuntz structure. In Applicants' invention, the flow is a complex combination of axial and lateral (transverse) flows in which the lateral flows serve as connecting segments between axial flows, all occurring through the plates themselves. In the Kuntz structure, the lateral flows lead only to the exit of the gas from the stack.

Nor does the disclosure of Hsu et al. US 6,183,703 B1 supply the elements missing from the disclosure of Kuntz. Applicants note that Hsu et al. was not cited against claims 4, 11, and 19, whose limitations are now incorporated into the independent claims and hence all claims of the application. Accordingly, the rejection based on Hsu et al. is obviated by the amendment.

Turning next to the rejection of claims 1, 4-8, 11-15, 19, and 20 over the disclosure of Ashmead et al. US 5,690,763, this rejection is likewise traversed. The rejection focuses on two lamina pairs, the first of which is laminae 200 and 300 and the second laminae 800 and 900. Enlarged views of these laminae appear in FIGS. 8 and 13, respectively. The channels formed in these lamina pairs, flow-through or otherwise, bear no relation to those of Applicants' claims. Most of the flow-through passages are not offset from one lamina to the next, and those that are offset do not form a plurality in each plate of any given pair. Thus, there is no flow communication between a plurality of flow-through channels in one plate and a plurality of flow-through channels in an adjacent plate. Where there is lateral flow between flow-through channels in adjacent plates, the flow enters at one location near one edge of the lamina and apparently sweeps across the lamina, leaving at a second location near an opposite edge. The lateral flow is thus in a single transverse direction and not "in all directions" as Applicants

Application No. 09/371,973

PATENT

Examiner: Doroshenk, A.; Art Unit 1764

Amendment No. 2 in Reply to Office Action of July 31, 2003

presently claim. There is no attempt to distribute the flow or to render it turbulent. This is a possible reflection of the fact that these two lamina pairs are described as heat exchange elements rather than catalytic elements. In any event, with a different purpose and a different flow configuration, Applicants submit that the invention as presently claimed is not obvious over the disclosure in Ashmead et al.

The Hsu et al. patent is again cited as a secondary reference in combination with the Ashmead et al. disclosure. Hsu et al. is not cited against claims 4, 11 and 19, however, which are now incorporated into the independent claims, and accordingly, the rejection citing the combination of Ashmead et al. and Hsu et al. is obviated by the amendment for the same reason as the rejection citing the combination of Kuntz and Hsu et al.

In view of the above, Applicants submit that all claims as amended are patentably distinct over the prior art, and reconsideration of the application is respectfully requested. Should any matters remain that can be resolved by a conference with Applicants' attorney, the examiner is encouraged to telephone the undersigned at 415-576-0200.

Respectfully submitted,



M. Henry Heines
Reg. No. 28,219

TOWNSEND and TOWNSEND and CREW LLP
Two Embarcadero Center, Eighth Floor
San Francisco, California 94111-3834
Tel: 415-576-0200
Fax: 415-576-0300
Attachments
MHH:mhh
60083696 v1